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Urban weather generation: the intercomparison of three emerging models

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Aim: to assess the performance of three numerical simulations models in reproducing urban air temperature at the local scale.

Field experiment:

- August 3-17, 2013
- Two Ta/RH data loggers (T2, T3)
- Neighborhood of Újlopótváros, Budapest

Models:

- Urban Weather Generator (UWG)
- Vertical City Weather Generator (VCWG)
- Surface Urban Energy and Water Balance Scheme (SUEWS)

Forcing:

- weather station data (from OMSZ)
- ERA5 (for SUEWS)

Weather station sites: (1) Újpest and (4) Pestszentlőrinc
Filed onbervation sites: T2 and T3

Evolution (A) and scatter plots (B) of observed and modeled hourly urban air temperature values

Preliminary results:

Especially during anticyclonic periods, models tend to underestimate nighttime temperatures.

Anticyclonic period

	UWG	VCWG	SUEWS
RMSE	1.55	2.13	2.38
d	0.97	0.94	0.94

Entire period

	UWG	VCWG	SUEWS
RMSE	1.29	1.75	1.91
d	0.97	0.95	0.95

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